ASME ANNUAL AM-5

TRANSACTIONS OF THE ASME

January 1960

SOCIETY RECORDS

Indexes to Publications for 1959

WHERE TO FIND THE ASME TRANSACTIONS IN THE UNITED STATES AND IN OTHER COUNTRIES • INDEXES TO ASME PAPERS AND PUBLICATIONS • INDEX TO MECHANICAL ENGINEERING • INDEX TO THE JOURNAL OF ENGINEERING FOR POWER • INDEX TO THE JOURNAL OF ENGINEERING FOR INDUSTRY • INDEX TO THE JOURNAL OF HEAT TRANSFER • INDEX TO THE JOURNAL OF BASIC ENGINEERING • INDEX TO THE JOURNAL OF APPLIED MECHANICS

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January 1960

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Where you will find the ASME Transactions

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Engineering Library

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Monterey.....U.S. Naval Postgraduate School
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San Francisco....Mechanics Institute
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Stanford Univ...Stanford University
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Wilbur Cross Library
Engineering Library—Engrg. Bldg. I
Waterbury.....Silas Bronson Library

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District of Columbia

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Scientific Library

Florida

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Georgia

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Georgia Institute of Technology
Library

Hawaii

Honolulu.....University of Hawaii
Library

Idaho

Moscow.....University of Idaho
Library

Illinois

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Library, Technology Center
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Iowa City.....State University of Iowa
Library—Serial Acquisitions Dept.

Kansas

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Wichita.....Wichita City Library

Kentucky

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Louisville.....University of Louisville
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Louisiana

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* Offers photoprint service.

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General Library

Missouri

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Engineering Library
Kansas City.....*Public Library
Rolla.....Missouri School of Mines and Metallurgy
Library
St. Louis.....*Public Library
Washington University
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Montana

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Library
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Nebraska

Lincoln.....University of Nebraska
Library, Science and Technology Reading
Room
Omaha.....*Public Library

Nevada

Reno.....University of Nevada
Engineering Library
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Library
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Library
Hanover.....Dartmouth College
Thayer School Engineering Library

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Hoboken.....Stevens Institute of Technology
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Newark.....Public Library
Newark College of Engineering
Library
New Brunswick..Rutgers University
Library
Paterson.....Public Library
Princeton.....Princeton University
Firestone Library
Engineering Library
Trenton.....*Public Library

New Mexico

Albuquerque.....University of New Mexico
Library—Acquisition Dept.
University Park..New Mexico State University
Library

New York

Albany.....*New York State University
Library
Brooklyn.....Polytechnic Institute
Library
Pratt Institute
Main Library
*Brooklyn Public Library—Science &
Industry Div.
Buffalo.....University of Buffalo
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Rochester.....University of Rochester
Rush Rhees Library
Schenectady.....Union College
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Syracuse.....Public Library
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Engineering Library, White Hall
Troy.....Rensselaer Polytechnic Institute
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Raleigh — North Carolina State College
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North Dakota

Fargo — North Dakota State College
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Grand Forks — University of North Dakota
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Student Section Library, Mech. Engrg. Dept.

Ohio

Ada — Ohio Northern University
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Cincinnati — Public Library
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Main Library
Public Library
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University of Dayton
Mech. Engrg. Dept.
Toledo — *Public Library
University of Toledo
Library
Youngstown — Public Library
Youngstown University
Library

Oklahoma

Norman — University of Oklahoma
Engineering Library
Oklahoma City — Public Library
Stillwater — Oklahoma State University
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Tulsa — *Public Library
University of Tulsa
Library

Oregon

Corvallis — Oregon State College
Engineering Library
Portland — *Portland Library Association

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Allentown — *Free Library
Bethlehem — Lehigh University
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Easton — Lafayette College
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Lewisburg — Bucknell University
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Mech. Engrg. Dept. Library
Philadelphia — Drexel Institute
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*The Franklin Institute
*The Free Library
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Library, School of Engineering
Pittsburgh — Carnegie Institute of Technology
Library
Carnegie Library
*Mellon Institute of Industrial Research
Library
University of Pittsburgh
George M. Bevier Engineering Library
Reading — Public Library
Scranton — Public Library
Swarthmore — Swarthmore College
Library
University Park — Pennsylvania State University
Engineering Library
Villanova — Villanova University
Library

Puerto Rico

Mayaguez — University of Puerto Rico

Rhode Island

Kingston — University of Rhode Island
Library
Providence — Brown University
Physical Sciences Library
Providence Engineering Society
*Public Library

South Carolina

Clemson — Clemson College
Library
Mech. Engrg. Library
Columbia — University of South Carolina
McKissick Memorial Library

South Dakota

Brookings — South Dakota State College
Library
Rapid City — South Dakota School of Mines and Technology
Mech. Engrg. Dept. Library

Tennessee

Knoxville — University of Tennessee
Engineering Library
Memphis — Goodwin Institute
Nashville — Joint University
Library
Engineering and Science Reading Room

Texas

Austin — University of Texas
Engineering Library—Taylor Hall
Beaumont — Lamar State College of Technology
Spindletop Engineering Library
College Station — Texas Agricultural and Mechanical College
Engineers Library
Cushing Library
Dallas — *Public Library
Southern Methodist University
Fondern Library
El Paso — Public Library
Fort Worth — Carnegie Public Library
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Library
Richmond — Virginia State Library

Washington

Pullman — Washington State University
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	University of Washington
	Engineering Library
	Mech. Engrg. Library
Spokane	Public Library
Tacoma	Public Library

West Virginia

Morgantown	West Virginia University
	Library

Wisconsin

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	College of Engineering Library
Milwaukee	Marquette University
	Mech. Engrg. Dept.
	*Public Library

Wyoming

Laramie	University of Wyoming
	Library—Periodical Section

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Australia

Adelaide	Public Library of South Australia
Brisbane	University of Queensland
Canberra	Australian National University
Melbourne	Public Library of Victoria
	University of Melbourne
Nedlands	University of Western Australia
Sydney	Public Library of Sydney
	Public Library of New South Wales
	Sydney Technical College
	University of Sydney
Wollongong	Wollongong Technical College

Belgium

Louvain	University of Louvain Library

Brazil

Sao Paulo	Centro Technico de Aeronautica

Canada

Edmonton	University of Alberta
Hamilton	Hamilton Public Library
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	Engineering Institute of Canada
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Quebec	Faculté des Sciences
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Toronto	University of Toronto
	Library
	Mech. Engrg. Library
Vancouver	University of British Columbia
	Library—Applied Science Reading Room
	Mech. Engrg. Dept. Library
Winnipeg	University of Manitoba

Chile

Santiago	Universidad de Chile Biblioteca Central
	Escuela de Ingenieria

Cuba

Havana	Cuban Society of Engineers

England

Birmingham	Birmingham Reference Library
Bristol	University of Bristol
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	Liverpool Public Libraries
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	Institution of Civil Engineers
	Institution of Electrical Engineers
	Institution of Mechanical Engineers
	Iron and Steel Institution
	Junior Institution of Engineers
	Patent Office Library
	Royal Aeronautical Society
	Science Museum Library
Manchester	Manchester Public Libraries
	Central Library
	Manchester College of Science and
	Technology
	University of Manchester
Newcastle-upon-Tyne	The North-East Coast Institution of Engineers and Shipbuilders
Oxford	Oxford University
	Bodleian Library
Sheffield	Sheffield Public Libraries

France

Paris	Soc. des Ingénieurs Civils
	The American Library

Germany

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Dusseldorf	Vereines Deutscher Ingenieure
	Vereines Deutscher Eisenhuttenleute
Hamburg	Bibliothek der Engenieurschule
Hanover	Bibliothek der Technischen Hochschule
Karlsruhe	Bibliothek der Technischen Hochschule
Munchen	Bibliothek der Technischen Hochschule
	Deutsches Museums Bibliothek
Stuttgart	Bibliothek der Technischen Hochschule

Holland

Amsterdam	Koninklyke Akademie von Wetenschappen
	National Luchtvaartlaboratorium
Delft	Bibliothek Technische Hogeschool
The Hague	Koninklyke Instituut van Ingenieure
Rotterdam	Nationaal-Technische Instituut voor Scheepvaarten Luchtvaart

India

Bangalore	Mysore Engineers Association
Hawrah	Bengal Engineering College Library
Poona	Poona College of Engineering

Ireland

Belfast	Queen's University of Belfast

Italy

Napoli	Facoltà di Ingegneria

Japan

Tokyo	The Japan Society of Mechanical Engineers

Mexico

Mexico City	Benjamin Franklin Library
	Ciudad Universitaria
	Facultad de Ingenieria

New Zealand

Christ Church	Canterbury University College

Scotland

Glasgow	Royal College of Science and Technology
	Mitchell Library

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Durban	University of Natal
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Sweden

Gothenburg	Chalmers University of Technology
Stockholm	Royal Institute of Technology Library

Switzerland

Zurich	Eidg. Technische Hochschule Bibliothek
	L'Ecole Polytechnique Federale

Turkey

Ankara	Middle East Technical University Library
Istanbul	Robert College Library

Wales

Cardiff	Cardiff Public Libraries

Indexes to ASME Papers and Publications

THIS and the following pages will serve as a guide to the current publications of the ASME.

Regular Society Publications, 1959

Mechanical Engineering, monthly (see index on page SR-103)

ASME Transactions: Quarterlies as follows:

Series A, *Journal of Engineering for Power* (see index on page SR-131)

Series B, *Journal of Engineering for Industry* (see index on page SR-135)

Series C, *Journal of Heat Transfer* (see index on page SR-139)

Series D, *Journal of Basic Engineering* (see index on page SR-143)

Series E, *Journal of Applied Mechanics* (see index on page SR-149)

Journal of Applied Mathematics and Mechanics, bimonthly
ASME Mechanical Catalog, 1960 edition
Applied Mechanics Reviews, monthly
Smog News, semimonthly

Publications Issued in 1959

BOOKS AND REPORTS

1958 ASME Transactions in three volumes
Corrosion and Deposits in Boilers and Gas Turbines
Fluid Meters—Their Theory and Application
Instruments for the Study of Atmospheric Pollution
Structural Damping
Thermodynamic and Transport Properties of Gases, Liquids, and Solids
Power Reactors
Research and Test Reactors
1958 Report on Oil and Gas Engine Power Costs
Spray Literature Abstracts

SAFETY CODES

Power Boilers with 1959 and Winter 1959 Addenda
Material Specifications
Low-Pressure Heating Boilers with 1959 Addenda
Miniature Boilers
Suggested Rules for Care of Power Boilers
Unfired Pressure Vessel Code with 1959 and Winter 1959 Addenda
Welding Qualifications with 1959 and Winter 1959 Addenda
Book of Interpretations of ASME Boiler and Pressure Vessel Rules
Gas Transmission and Distribution Piping Systems
Oil Transportation Piping
Petroleum Refining Piping
Powered Industrial Trucks

DRAFTING STANDARDS MANUAL

Section 10, Metal Stampings
Section 11, Fluid Power Diagrams

PIPE, PIPE FITTINGS, AND THREADS

Cast-Brass Solder-Joint Drainage Fittings
Wrought-Steel and Wrought-Iron Pipe

SMALL TOOLS AND MACHINE TOOL ELEMENTS

Drill Drivers
High Speed Steel and Cast Nonferrous Single Point Tools and Tool Holders
Reamers
Rotating Air Cylinders and Adapters
Taps—Cut and Ground Threads

SCREW THREADS AND THREADING TOOLS

Class 5 Interference—Fit Thread
Unified Miniature Screw Threads

SYMBOLS

Graphical Symbols for Welding
Letter Symbols for Rocket Propulsion

MISCELLANEOUS STANDARDS

Illustrations for Publication and Projection
Pallet Sizes

INSTRUMENTS AND APPARATUS (Supplementary documents to Power Test Codes)

Part 5, Chapter 4, Flow Measurement
Part 11—Quality and Purity of Steam

How to Find Papers Presented at 1959 ASME Meetings

THE technical programs of the meetings of the Society and of its Professional Divisions have been published in *Mechanical Engineering* and may be located by consulting the index on pages SR-103 to SR-130. Many of these papers will be published in *Mechanical Engineering* or the *Transactions* and may be located by reference to the indexes of these publications.

Publications Developed by the Technical Committees

THE Society's technical committees, the first of which was organized many years ago and all of which have been continuously at work on codes, standards, research, and other special reports, have developed a series of publications of permanent value to the membership. The following list is presented here for record and for ready reference. This list covers the works of these committees together with dates of publications and prices. A discount of 20 per cent is allowed to ASME members on all publications except where statement "no discount allowed" appears after price.

ASME AMERICAN STANDARDS

Bolt, Nut, and Rivet Proportions

Hexagon and Slotted Head Cap Screws—Square Head Set Screws—Slotted Headless Set Screws (B18.6.2—1956), $1.50
Large Rivets (B18.4—1950; reaffirmed 1957), $1.50
Plow Bolts (B18.9—1958), $1.50
Round Head Bolts (B18.5—1952), $1.50
Slotted and Recessed Head Wood Screws (B18.6.1—1956), $1.00
Slotted and Recessed Tapping Screws and Metallic Drive Screws (B18.6.4—1958), $4.00
Small Solid Rivets (B18.1—1955), $1.50
Socket Head Cap Screws and Socket Set Screws (B18.3—1954), $1.50
Square and Hexagon Bolts and Nuts and Lag Bolts (B18.2—1955), $2.00
Track Bolts and Nuts (B18.10—1952), $1.50
High-Strength, High-Temperature Internal Wrenching Bolts (B18.8—1950; reaffirmed 1958), $1.00

Gear Design, Dimensions, and Inspection

Design for Fine-Pitch Worm Gearing (B6.9—1956), $1.50

Fine-Pitch Straight Bevel Gears (B6.8—1950), $1.00
Gear Nomenclature (B6.10—1954), $1.50
Inspection of Fine-Pitch Gears (B6.11—1956), $2.50
Gear Tolerances and Inspection (B6.6—1946), $1.50
Letter Symbols for Gear Engineering (B6.5—1954), $1.50
Spur Gear Tooth Form (B6.1—1932), $1.00
20-Degree Involute Fine-Pitch System for Spur and Helical Gears (B6.7—1956), $1.50
Nomenclature for Gear Tooth Wear and Failure (B6.12—1954), $1.50
System for Straight Bevel Gears (B6.13—1955), $1.00

Piping, Pipe Fittings, and Threads

Air Gaps and Backflow Preventers in Plumbing Systems (A40.4—1942 and A40.6—1943), $1.50
Brass Fittings for Flared Copper Tubes (B16.26—1958), $1.00
Brass or Bronze Flanges and Flanged Fittings for 150 and 300 Lb (B16.24—1953), $1.00
Brass or Bronze Screwed Fittings for 125 Lb (B16.5—1958), $1.50
Brass or Bronze Screwed Fittings for 250 Lb (B16.17—1949; reaffirmed 1953), $1.00
Butt-Welding Ends (B16.25—1958), $1.00
Cast-Brass Solder-Joint Fittings (B16.18—1950), $1.50
Cast-Bronze Solder-Joint Drainage Fittings (B16.23—1959), $2.00
Cast-Iron Pipe Flanges and Flanged Fittings for 25 Lb Maximum Saturated Steam Pressure (B16b2—1931; reaffirmed 1952), $1.00
Cast-Iron Pipe Flanges and Flanged Fittings Class 125 (B16.1—1948, reaffirmed 1953), $1.50
Cast-Iron Pipe Flanges and Flanged Fittings Class 250 (B16b—1944; reaffirmed 1953), $1.50
Cast-Iron Pipe Flanges and Flanged Fittings for Refrigerant Piping, Class 300 (B16.16—1948; reaffirmed 1952), $1.00
Cast-Iron Pipe Flanges and Flanged Fittings for 800 Lb Maximum Hydraulic Pressure (B16b1—1931; reaffirmed 1952), $1.00
Cast-Iron Soil Pipe and Fittings (A40.1—1935), $2.00
Cast-Iron Screwed Fittings for 125 and 250 Lb Maximum Saturated Steam Pressure (B16.4—1949; reaffirmed 1953), $1.50
Cast-Iron Screwed Drainage Fittings (B16.12—1953), $1.00
Face-to-Face and End-to-End Dimensions of Ferrous Valves (B16.10—1957), $1.50
Ferrous Plugs, Bushings, Lock Nuts, With Pipe Threads (B16.14—1949; reaffirmed 1953), $1.00
Malleable-Iron Screwed Fittings, 150 Lb (16.3—1951; reaffirmed 1958), $1.50
Malleable-Iron Screwed Fittings, 300 Lb (B16.19—1951; reaffirmed 1958), $1.00
Nonmetallic Gaskets for Pipe Flanges (B16.21—1951), $1.00
Pipe Threads (B2.1—1945), $2.50
Ring-Joint Gaskets and Grooves for Steel Pipe Flanges (B16.20—1956), $1.00
Scheme for the Identification of Piping Systems (A13.1—1956), $1.00
Steel Pipe Flanges and Flanged Fittings for 150, 300, 400, 600, 900, 1500, and 2500 Lb, Including References to Valves (B16.5—1957), $3.00
Stainless-Steel Pipe (B36.19—1957), $1.00
Steel Butt-Welding Fittings (B16.9—1958), $1.50
Steel-Socket Welding Fittings (B16.11—1946; reaffirmed 1952), $1.00
Threaded Cast-Iron Pipe for Drainage, Vent, and Waste Services (A40.5—1943), $1.00
Wrought-Copper and Wrought-Bronze Solder-Joint Fittings (B16.22—1951), $1.00
Wrought-Steel and Wrought-Iron Pipe (B36.10—1959), $1.50

Symbols, Abbreviations, and Drafting Practice

Abbreviations for Scientific and Engineering Terms (Z10.1—1941), $0.50
Abbreviations for Use on Drawings (Z32.13—1950), $1.25
Illustrations for Publication and Projection (Y15.1—1959), $2.00
Drafting Standards Manual
- Section 1, Size and Format (Y14.1—1957), $1.00
- Section 2, Line Conventions, Sectioning, and Lettering (Y14.2—1957), $1.50
- Section 3, Projections (Y14.3—1957), $1.50
- Section 4, Pictorial Drawing (Y14.4—1957), $1.50
- Section 5, Dimensioning and Notes, (Y14.5—1957), $2.00
- Section 6, Screw Threads (Y14.6—1957), $1.50
- Section 7, Gears, Splines, and Serrations (Y14.7—1958), $1.50
- Section 9, Forgings (Y14.9—1958); $1.50
- Section 10, Metal Stampings (Y14.10—1959), $1.50
- Section 11, Plastics (Y14.11—1958), $1.50
- Section 17, Fluid Power Diagrams (Y14.17—1959), $1.50

Time Series Charts (Z15.2—1947), $1.50
Graphical Symbols for Fluid Power Diagrams (Y32.10—1958), $1.50
Graphical Symbols for Welding (Y32.3—1959), $3.00
Graphical Symbols for Plumbing (Y32.4—1955), $1.00
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ANDREESEN, JOHN H., JR., AND COLVIN, HENRY F., III
Philosophy and mechanization of an air-data computer. Paper No. 58—Av-15.

APPLEBY, E. C.
Glass-fiber banding of traction-motor armatures. Paper No. 58—A-173.

ARATA, W. H., JR.
Airframe design for local airlines operation. Paper No. 58—Av-13.

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Trouble-shooting mechanical dust collectors. Paper No. 58—A-283.

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Emissivity measurement of industrial surfaces due to thermal radiation. Paper No. 58—HT-18.

ARMSTRONG, T. N., GROSS, J. H., AND BRIEN, R. E.
Properties affecting suitability of 9 per cent nickel steel for low-temperature service. Paper No. 58—Met-3.

ARNOW, S. M., AND ALLEN, J. L.
Pumping power in the feedwater cycle. Paper No. 58—Pwr-2.

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Aerodynamic vibration of tall cylindrical columns. Paper No. 58—Pet-4.

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Evolution of the boiler feed-pump drive. Paper No. 58—Pwr-18.

BAKER, W. E.
Scale model tests for evaluating outer container structures for nuclear reactors.

BALDWIN, LIONEL V.
Heat transfer from cylinders in subsonic slip flow. Paper No. 58—A-202.

BANKOFF, S. G., AND MIKESELL, R. D.
Growth of bubbles in a liquid of initially nonuniform temperature. Paper No. 58—A-105.

BARRY, WILLIAM R.
Approach, parameters, and interpretation of the V-1500 slush pump. Paper No. 58—Pet-15.

BASS, LAWRENCE W.
Evaluation of technical programs. Paper No. 58—Mgt-3.

BATIUK, M., AND ROLLS, J. A.
Designing with rigid polyvinyl chloride. Paper No. 58—SA-67.

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Experimental laboratory studies of bearing fatigue. Paper No. 58—A-235.

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The use of digital computers for petroleum and refinery engineering problems. Paper No. 58—Pet-24.

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A look at Russian automation and technical developments. Paper No. 58—SA-11.

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The Allison 501-D13 prop-jet engine and its place in the air transport industry. Paper No. 58—Av-27.

BENEDICT, R. P.
Liebmann network approximations to one-dimensional transient heat-conduction problems. Paper No. 58—A-221.

BERCHTOLD, MAX, AND GARDINER, F. J.
The comprex . . . a new concept of diesel supercharging. Paper No. 58—GTP-16.

BERRY, L.
Solid lubricant coatings. Paper No. 58—Av-20.

BERRY, W. D.
Design requirements for a stamping press for producing quality parts safely.

BINARK, HIKMET, AND RANZ, W. E.
Induced air flows in fuel sprays. Paper No. 58—A-284.

BLAND, D. M.
Variable-incidence wing-operating mechanism. Paper No. 58—Av-2.

BLAND, J., PARRISH, C. B., AND WHEELER, R. C.
Casting-weldments in a petroleum refinery. Paper No. 58—Met-5.

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The efficient use of welded steel in machine design. Paper No. 58—A-223.

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A new analytical approach to drill-pipe breakage. Paper No. 58—Pet-12.

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A practical approach to vibration and balancing problems in machine maintenance. Paper No. 58—MPE-5.

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CHAPPELL, R. E., AND MEYER, R. D.
Shot cleaning—its development and use for cleaning economizers, tubular air heaters, and applicable boiler sections. Paper No. 58—A-104.

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Control systems with correlation regulating actions.

CHEN, SHIH-YUAN
Transient temperature distribution and thermal stresses in a hypersonic unsymmetrical wing structure at angles of attack. Paper No. 58—SA-63.

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Adiabatic wall temperature downstream of a single, tangential injection slot. Paper No. 58—A-107.

CHRISTENSEN, RICHARD M.
Thermal stresses in missile nose cones. Paper No. 58—A-274.

CHRISTOFFEL, R. J., CURRAN, R. M., DOMINA, F. H., AND SOLDAN, C. H.
Welding metallurgy of Cr-Mo-V steels for high-temperature steam-turbine components. Paper No. 58—Met-7.

CLARKE, J. S., AND LEAHEY, T. F.
Storage-tank design practices to avoid brittle fracture. Paper No. 58—A-149.

COHN, GUNTHER
Technical data on border-punched cards. Paper No. 58—SA-27.

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Operations planning for introducing new aircraft into a local service airline system. Paper No. 58—Av-12.

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Experiences with cyclohexylamine in the condensate—feedwater systems of high-pressure boilers. Paper No. 58—A-263.

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DUSINBERRE, G. M.
A note on propulsion efficiency. Paper No. 58—A-245.

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Economic considerations in applying gas turbines to electric utility and industrial applications. Paper No. 58—GTP-20.

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